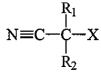
REMARKS

The Office Action of March 27, 2008 has been carefully considered. Claims 8, 22, 25 and 31 have been amended. Claims 8-16 and 22-33 are in this application.

The Examiner indicated that claim 16 was not described in the specification. Applicant notes that there is support in the specification at ¶ [0033] for the molecular weight of the nitrile being smaller than 200.

The previously submitted claims 8-16 and 30-33 were rejected under 35 U.S.C. § 102(b) as being anticipated or under 35 U.S.C. § 103(a) as obvious in view of JP 2000-113906 to Nishikawa et al. Applicant submits that Nishikawa et al. do not teach or suggest each of the elements of the present claims.

As defined in the amended claims 8 and 22, the electrolyte of the present invention comprises 1) an electrolyte salt, 2) first non-aqueous solvent of cyclic carbonate, and 3) second non-aqueous solvent of nitrile having the following general formula (I) :



(I)

wherein the oxygen (atom) of the carbonate is chemically bonded to the carbon atom of the cyano group through no more than one carbon, i.e. NC-C-OCOO-.

In the case the linkage (chemical bonding) is through more than one carbon, for example, two carbons, e.g. NC-CH2-CH2-OCOO-, as shown in Comparative Example CE-4 of the present application, the electrolyte did not work for a lithium-ion battery, refer to ¶ 0074, ¶ 0075 and ¶ 0076:

> In the same manner, as described in Example 1, two batteries were made for each electrolyte samples. Testing data of the resulting batteries are recorded in Table 2 under each electrolyte Sample Nos. CE-3 and -4. In the both cases, the resulting batteries could not be charged due to a side reaction of electrolyte on electrode. As a result, these batteries delivered very little discharge capacity.
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> Fig. 2 shows a comparison of voltage profiles of three batteries made using electrolyte Sample Nos. CE-4 (circle), E-2 (triangle), and E-4 (square) during first

charge cycle to 3.9V. These three batteries were charged first at a constant current of 3.3mA to 3.5V, and then at a constant current of 6.6mA up to 3.9V. As illustrated in the figure, for the batteries made using electrolyte Sample Nos. E-2 and E-4, the battery voltage went up to 3.9Vgradually. However, for the battery made using electrolyte Sample No. CE-4, the voltage went up to 3V and then decreased a little and then stayed at a voltage of below 3V for almost 130 minutes and then quickly increased up to 3.9V. It is apparent that some oxidation reaction took place.

These results indicated the electrolyte comprising a nitrile having such chemical structure as APN or CEEC could not be used for high voltage battery e.g. lithium-ion battery since such nitrile is not electrochemically stable.

Nishikawa et al. disclose an organic electrolyte containing a nitrile compound having a general formula R1-COO-(CH)a-CN, "a" stands an integer of 1-3. As described above, if "a" is more than 1, namely the linkage between the oxygen (atom) of the carbonate and the carbon atom of the cyano group is more than one carbon, the resulting electrolyte does not work for a lithium-ion battery.

In contrast to the invention defined by the present claims, Nishikawa et al. do not teach or suggest the present chemical structure of the nitrile compound. Accordingly, the invention defined by the present claims is not anticipated or obvious in view of Nishikawa et al.

The previously submitted claims 8-16, 30-33, 22, 24-28 were rejected under 35 U.S.C. § 102(b) as being anticipated by or under 35 U.S.C. § 103(a) as obvious in view of JP-2000-077096 to Kobayashi et al. Applicant submits that Kobayashi et al. do not teach or suggest each of the elements of the present claims.

Kobayashi et al. teach a non-aqueous electrolyte battery. The electrolyte solvent comprises cyanoethoxy compound represented by the general formula R-(OCH2CH2-CN)n, e.g., CH3OCOO-CH2CH2-CN as described in Example 8. The linkage between the oxygen (atom) of the carbonate and the carbon atom of the cyano group is two carbons (-CH2CH2-).

In contrast to the invention defined by the present claims, Kobayashi et al. do not teach or suggest the linkage is not more than 1 carbon. Thus, Kobayashi et al. do not teach or suggest the

chemical structure of the nitrile compound of the present invention. Accordingly, the invention defined by the present claims is not anticipated or obvious in view of Kobayashi et al.

The previously submitted claims 8-16, 30-33, 22, 24-28 were rejected under 35 U.S.C. § 102(b) as being anticipated by or under 35 U.S.C. § 103(a) as obvious in view of JP 2000-243442 to Toriida et al. Applicant submits that Toriida et al. do not teach or suggest each of the elements of the present claims.

Toriida et al. disclose a non-aqueous electrolyte consisting of a compound having a cyanoethyl group expressed with a general formula R-(O)n-COO-CH2CH2-CN. The linkage between the oxygen (atom) of the carbonate (if "R" is a hydrocarbon group and "n" equals to 1) and the carbon atom of the cyano group is two carbons (-CH2CH2-).

In contrast to the invention defined by the present claims, Toriida et al. do not teach or suggest the linkage is not more than 1 carbon. Thus, Toriida et al. do not teach or suggest the chemical structure of the nitrile compound of the present invention. Accordingly, the invention defined by the present claims is not anticipated or obvious in view of Toriida et al.

In view of the foregoing, Applicant submits that all pending claims are in condition for allowance and request that all claims be allowed. The Examiner is invited to contact the undersigned should she believe that this would expedite prosecution of this application. It is believed that no fee is required. The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,

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